

Root Cause Analysis Examples

[Root Cause Analysis Worksheet_27Jun00.pdf](#)

Adequate root cause analysis is essential to determining the appropriate corrective or preventive action for identified non-conformances. Often, Preventive and Corrective Action Request (PCAR) root cause descriptions are simply a reworded non-conformance or are stated in too narrow a scope to adequately address the prevention of a recurrence. Limited root cause descriptions can result in only addressing the symptoms of the problem and not the probable systemic causes.

The root cause description should help define the proposed actions with the goal of preventing problems in the future. One technique in developing a root cause description is to ask a series of “why” questions concerning the occurrence of the non-conformance. The following examples illustrate the technique.

Problem 1:

A piece of shop equipment has broken and the foreman has determined a replacement is needed.

Why did the equipment break? The equipment just wore out.

Why did the equipment wear out? The equipment overheated.

Why did the equipment overheat? The coolant level was too low.

Why was the coolant level too low? The coolant level was not checked.

Why wasn't the coolant level checked? The equipment was not on the preventive maintenance schedule.

Why wasn't the equipment on the preventive maintenance schedule? There was not a system for tracking new equipment or changes to existing equipment to update the preventive maintenance schedule.

Root Cause Description:

There is no system to track new equipment installations or changes to existing equipment requiring routine or special maintenance.

Action Proposed:

Develop a system for tracking equipment changes and maintaining the preventive maintenance schedule for routine and special servicing requirements.

Simply replacing the equipment would have solved the immediate problem but not identified a larger problem of tracking maintenance requirements for equipment changes. The proposed action not only will extend the life of the to be replaced equipment but in all probability prevent similar equipment failures due to poor maintenance of newly installed equipment in other areas of the shop as well.

Problem 2:

Media-specific environmental requirements applicable to PW projects were not always incorporated in the design specifications.

Why weren't the environmental requirements incorporated? The requirements were not identified during review of the project by the environmental office.

Why weren't the environmental requirements identified? The appropriate media managers were not always on the checklist of environmental reviewers that accompanied the project documentation.

Why weren't the media managers not always on the checklist? The checklists were prepared outside of the environmental office by the project managers, who were sometimes unaware of specific media requirements.

Why weren't the checklists revised to include the pertinent media managers? The projects and checklists when received in the environmental office were routed directly to the reviewers identified only by the project managers.

Why were the projects and checklists routed directly to reviewers identified only by the project managers? There was no procedure for reviewing of the project and checklist when first received at the environmental office before being routed for environmental review, and follow-up to confirm that the environmental review was done.

Root Cause Description:

There is no system in the environmental office for reviewing the project documentation and checklist of reviewers to ensure that all media managers who need to review PW work projects are identified on the checklist, and tracking to ensure that the review was performed.

Action Proposed:

Develop procedures for reviewing PW project documentation and checklist of reviewers to ensure that all media managers who need to review PW work projects are identified on the checklist, and tracking to ensure that the environmental review is performed.

Simply incorporating the environmental requirements into the design specifications would have resolved the immediate problem but not the bigger problem of fixing the problem to prevent recurrence. The proposed action will prevent similar failures to incorporate environmental requirements due to lack of complete environmental review.

The specific technique you use to develop your root cause description is up to you. However, **PCARs with incomplete root cause descriptions or limited action plans will be returned** for additional analysis and clarification.